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B8C CWA1
U1S S1052

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GB 1019552 A GB 1012636 A GB 0924178 A
WO 88/06558 A1 US 4338338 A US 3911578 A

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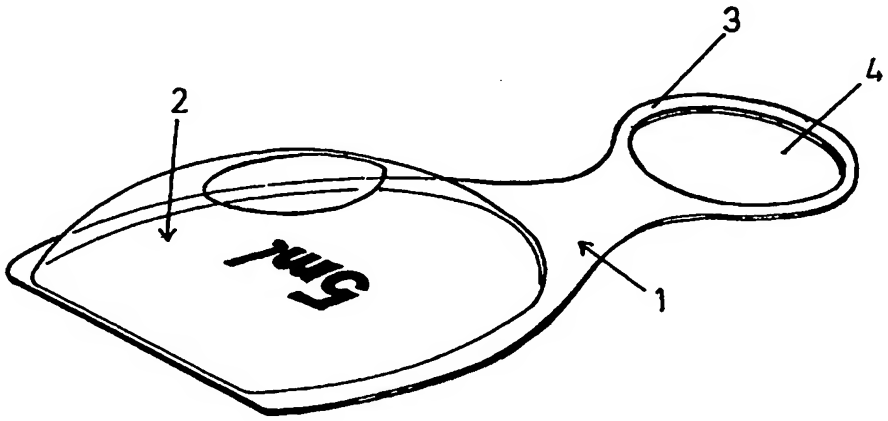
(54) Medicament dosing device

(57) The device comprises a first member (1) having a handle portion (3) and a container portion with a second member (2) joined thereto along a peripheral region thereof to define between the members a container (5) for medicament. At least one of the members or the join between them is provided with a zone of weakness adapted to be easily rupturable. Rupture may easily be accomplished by withdrawing the device through the patients teeth or lips, thereby to disgorge the contents into the mouth of the patient.

FIG 1

spoon shape



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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1995

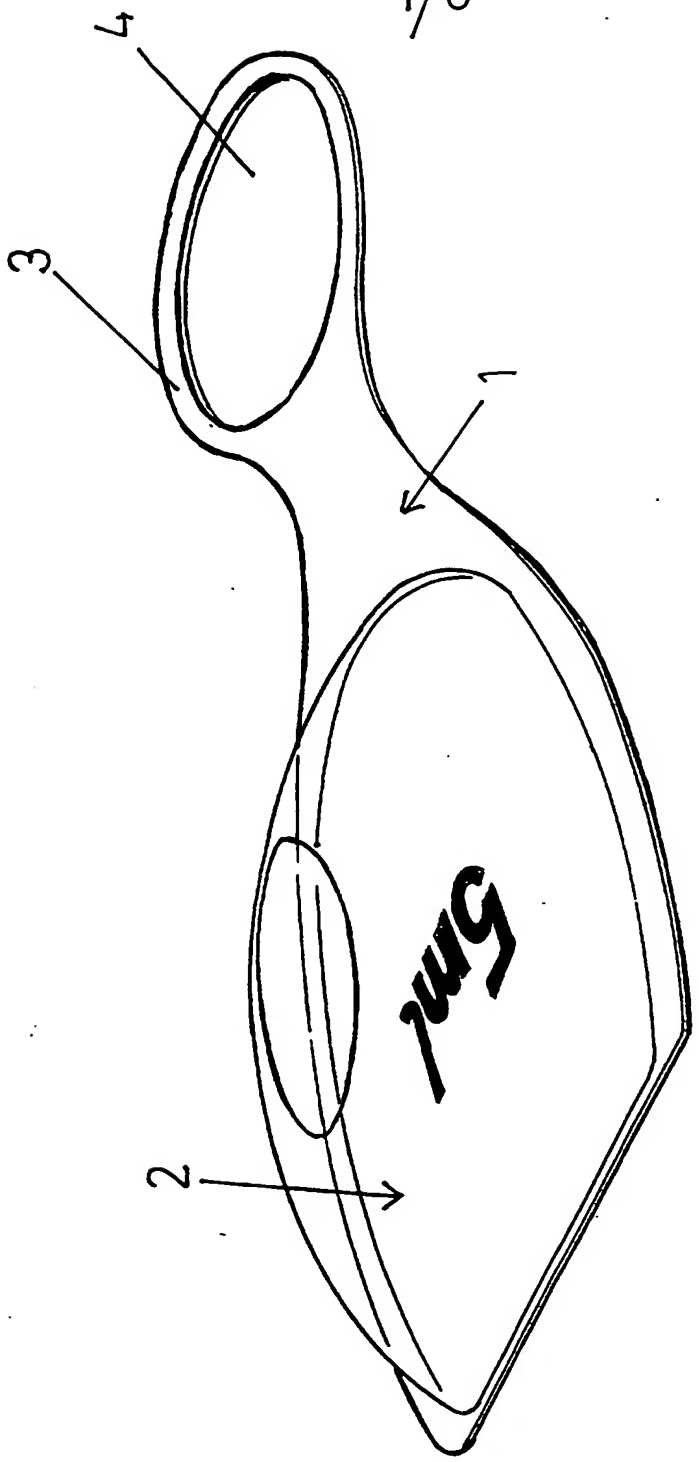
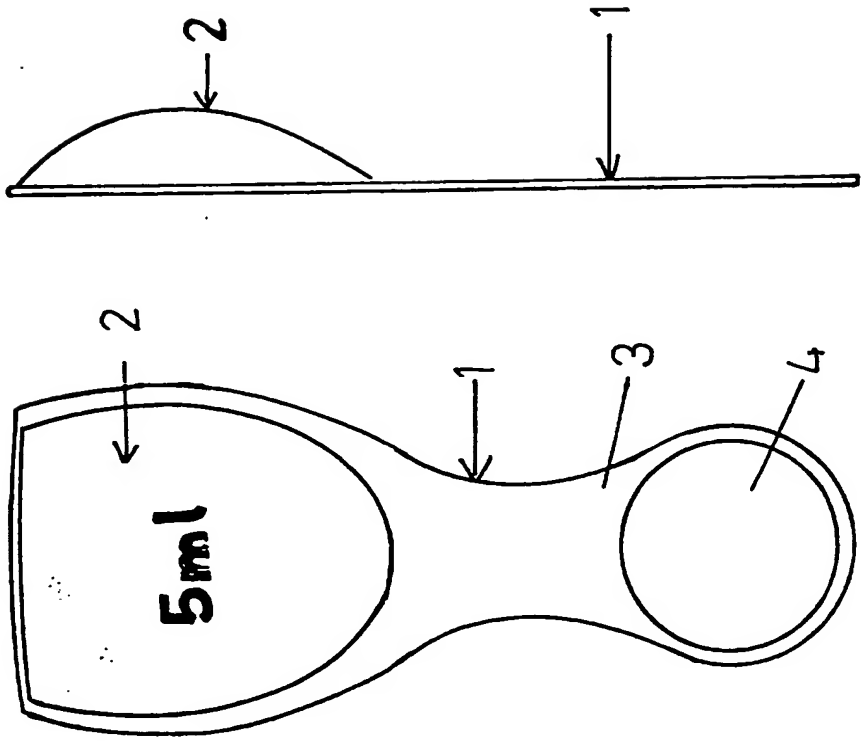


FIG 1

FIG 2



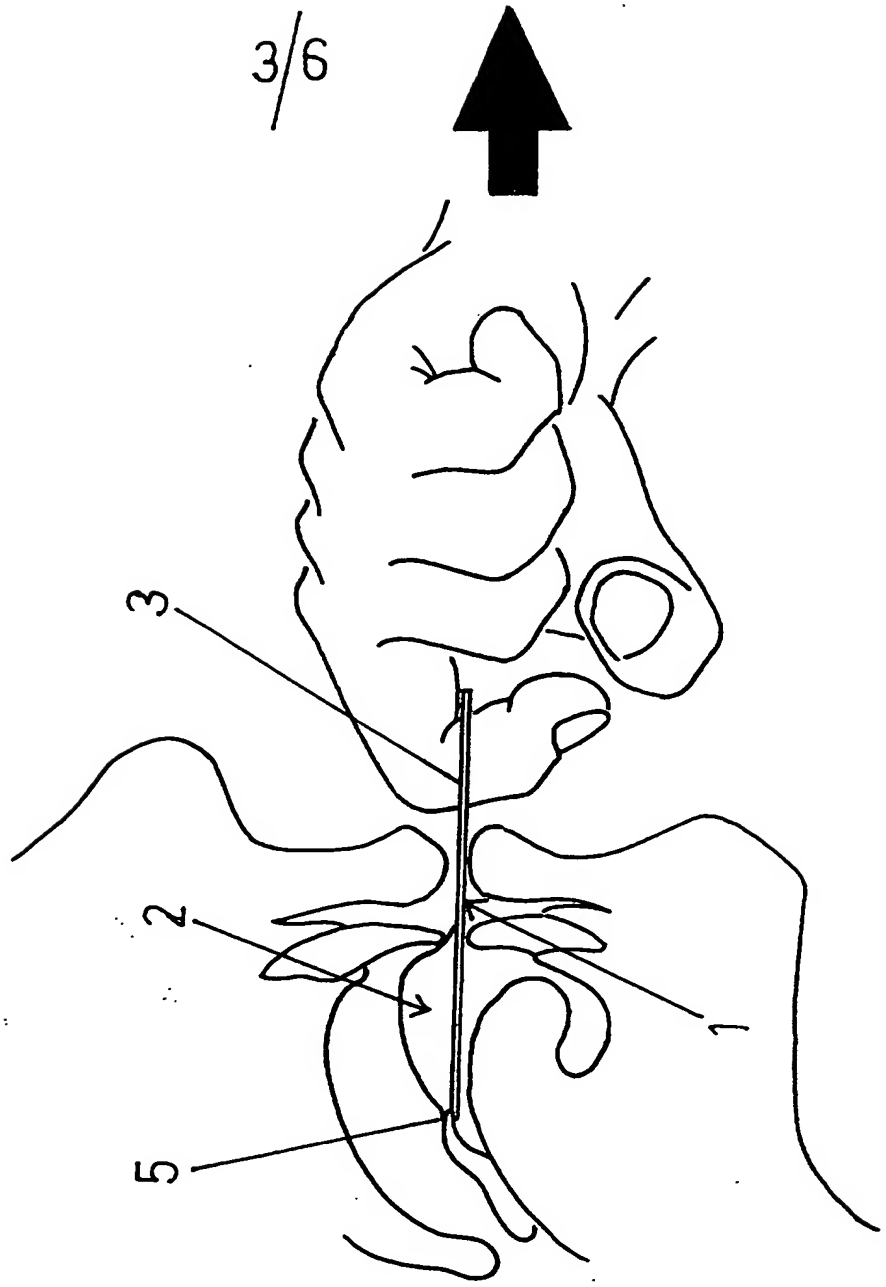
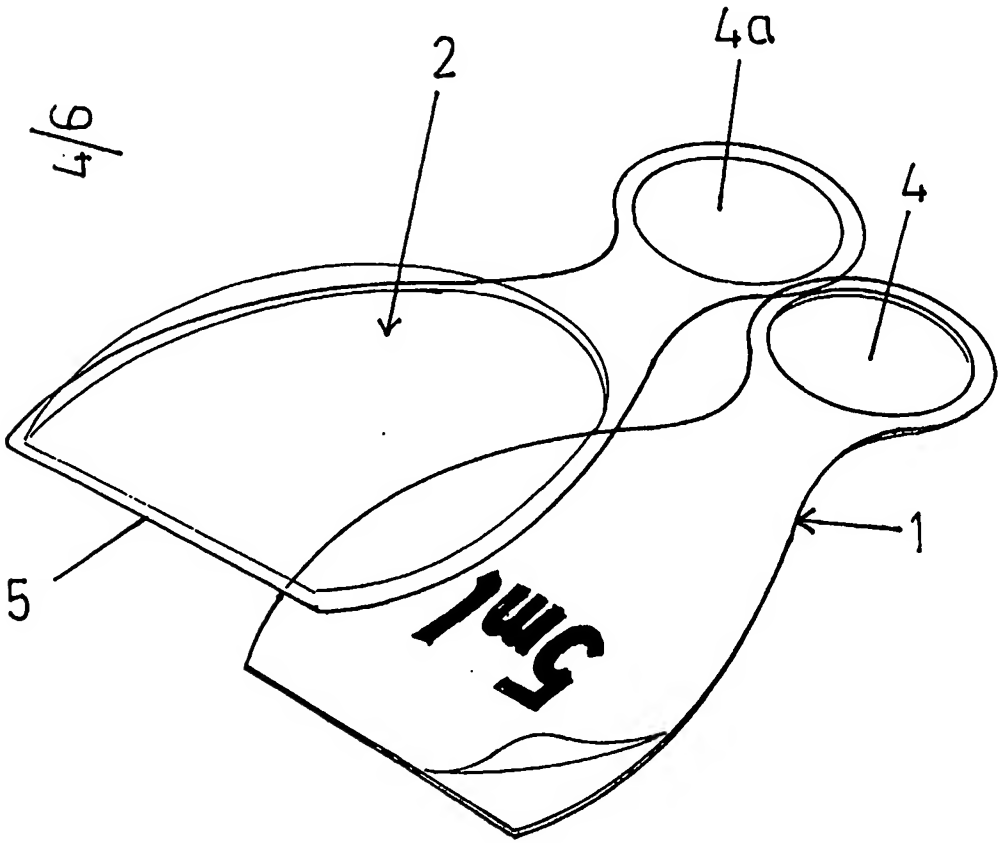


FIG 3

FIG 4



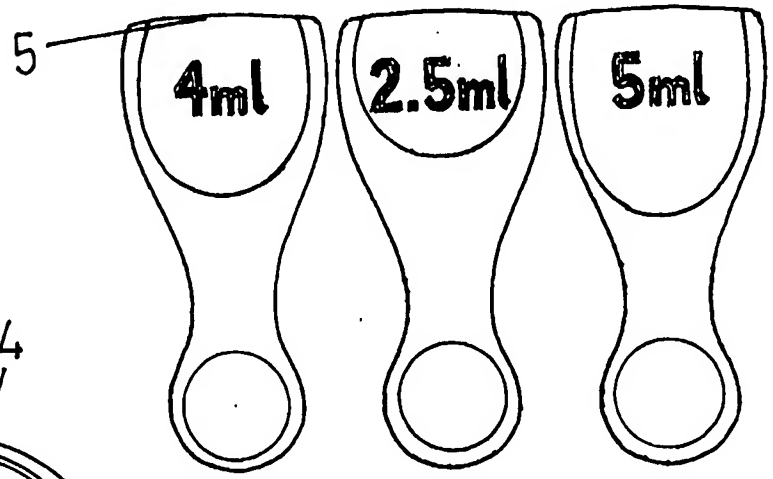


FIG 5

FIG 7

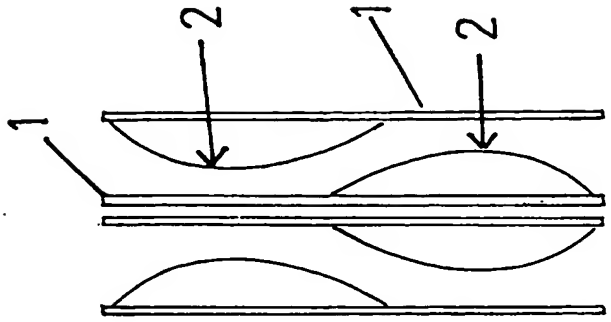
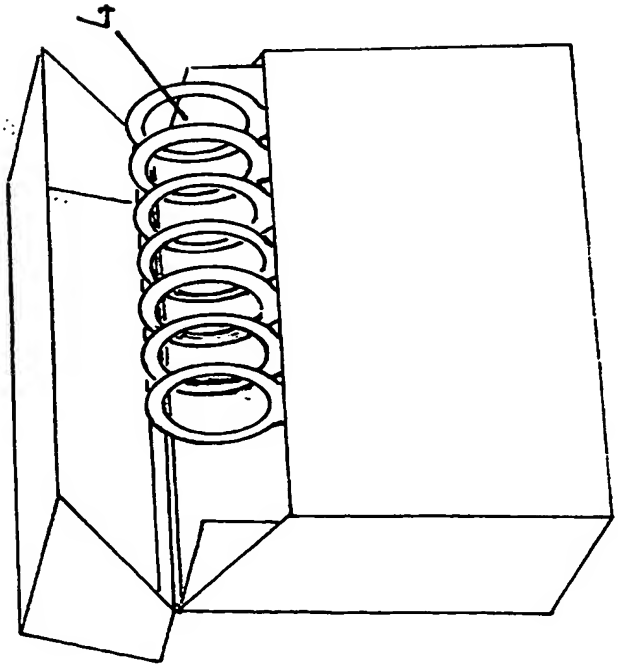


FIG 6



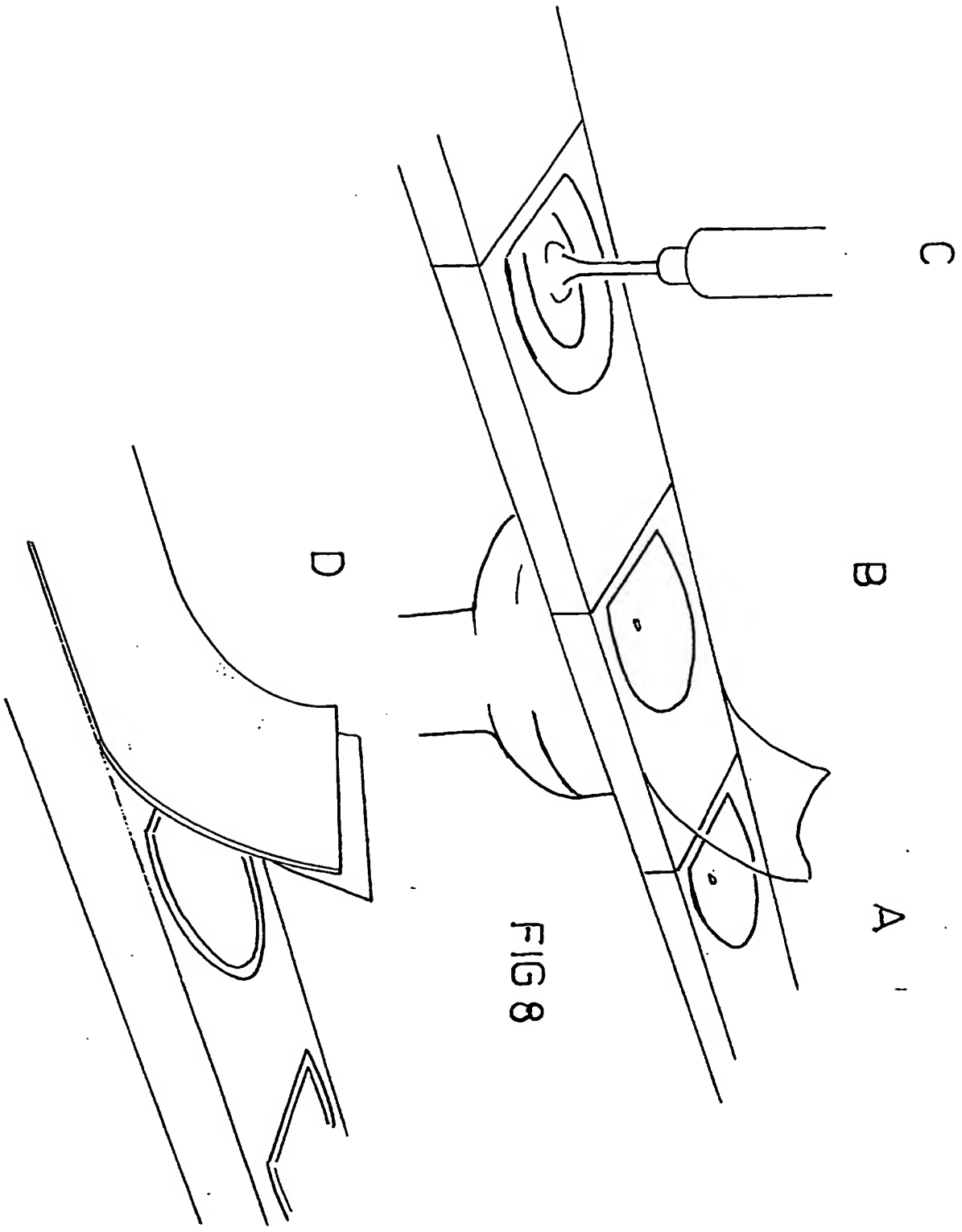


FIG 8

MEDICAMENT DOSING DEVICE

The present invention relates to a medicament dosing device. More particularly, but not exclusively, it relates to a device which can be filled with a predetermined amount of medicament, inserted into a patients mouth and be ruptured therewithin to allow egress of the medicament from the container into the mouth of the patient, preferably at a rearward portion thereof.

The term medicament, as used herein, refers to medicines, at a prescribed dosage, and also to any other fluid which may need to be introduced into a patient. In this connection patient refers to human or animal recipients of the medicament.

It is known to deliver the medicaments to patients by means of a spoon which is inserted into the mouth of the patient. Many medicaments are provided with a spoon of predetermined volume, and if this is filled completely and delivered accurately into the mouth of the patient, the correct dosage will be achieved. However, this is not always possible since some patients are unwilling to receive the medicament, there may be spillage, or the spoon may not be filled to the correct volume.

It is an object of the present invention to provide a metered dose of an medicament, as defined above, which may be inserted orally and be so ruptured within an oral cavity that the medicament flows more easily into the patient.

According to a first aspect of the present invention there is provided a medicament dosing device comprising a first member having a handle portion and a container portion, a second member joined to said container portion of said first member along a peripheral region thereof to define between the members a container for medicament, at least one of said members or the join between them being provided with a zone of weakness adapted to be easily rupturable.

Preferably, the handle portion includes an aperture dimensioned and configured for digital engagement.

The second member may also comprise a handle portion conjoined to the handle portion of the first member.

The zone of weakness is preferably located at a location most remote from the handle portion.

The zone of weakness may be such as to be ruptured by oral or dental pressure applied to the contents of the container portion at any location thereon.

Advantageously, the first member comprises a substantially rigid unit comprising a metal foil sheet.

The foil may be laminated to a substrate of plastics material, such as polycarbonate, or fibrous material, such as paper or board.

Alternatively, the first member may comprise a substantially rigid unit comprising a plastics material, such as polycarbonate.

The second member may be resiliently deformable to enable pressure to be applied orally to

the container.

The second member may be of a plastics material, such as polyethyleneterephthalate (PET), polyproplylene, polystyrene or polyethylene.

In this case the second member may be so configured as to accept a predetermined dose of medicament when conjoined with the first member.

The first member may be provided with insignia representative of the dosage or the medicament. In this case, the insignia may be viewable through the medicament and the second member. Since the container of liquid medicament is joined one member to the other, along their respective edges, it forms a convex or planoconvex lens to magnify the insignia when seen through the medicament.

One of the members may be planar and the other member may be so dimensioned that, when the two members are conjoined, the container so formed has a predetermined volume.

Preferably the first member is planar.

According to a second aspect of the present invention, there is provided a method of producing a device as described above comprising the steps of providing a material to form the second member, forming said material into a bowl shape; inserting a metered dose of medicament into the bowl shape of said second member; and adhering thereto said first member.

Preferably, the conjoined first and second members are cut to a desired shape.

The preferred shape may include a handle portion.

Embodiments of the present invention will now be more particularly described by way of example, and with reference to the accompanying drawings, in which:

Figure 1 is a schematic view of an embodiment of the invention;

Figure 2 shows in elevation and plan view the device of Figure 1;

Figure 3 shows a method of delivery of medicament from the device of the invention;

Figure 4 shows in separated condition the device of the invention;

Figure 5 shows variants, each adapted to receive a predetermined dose of medicament;

Figure 6 shows a package for storage and sale of a plurality of devices;

Figure 7 shows one way of storing the devices in a package as shown in Figure 6, or in some other package; and

Figure 8 shows, in schematic steps A to D, a method of producing and filling the device.

Referring now to the drawings, there is shown in figure 1 a device embodying the invention. It comprises a first rigid planar member 1 to which is conjoined, along its edges, a second member 2, preferably of transparent and deformable material. The first member 1 extends to form a handle portion 3, which in the preferred embodiment takes the form of a finger grip aperture 4. The device may be inserted into a patient's mouth with a finger through the aperture 4 and then, on retraction, the contents will be dispensed within the oral cavity, as will be explained in more detail below.

The first and second members 1 and 2 are conjoined along respective edges to form a container for medicament.

In one zone 5, the joint between the members is less strong than that around the remainder of the periphery and is therefore rupturable under pressure. As can be seen from figure 3, the method of operation of the device is for it to be inserted into the oral cavity and

withdrawn. The closed teeth, or even the closed lips will exert pressure on the container and thereby cause the weakened zone 5 of the container to rupture and allow egress of the medicament contained therein. In the case of a non-cooperative patient, such as an animal, the jaws can be held together after insertion of the device and its withdrawal will release the contents. It is preferred that the rupturable zone 5 is at an end remote from the handle 3 so that the medicament released through the zone is more likely to be ingested by the patient.

In a preferred embodiment, the first member 1 is planar and the second member 2 forms a bubble shape attached around its edges to the first member. The dosage contained in the device, and a description of the medicament contained therein may be displayed on an inward facing surface of the first member. The liquid contained between the first and second members forms a convex or planoconvex lens which magnifies the insignia on the first member and enables it to be read easily.

The second member 2 may not be confined solely to the area of medicament containment, but may extend along the handle 3 and be joined to the first member, having its own aperture co-acting with the aperture 4 of the first member.

Storage of the device will depend on the medicament which is contained within it but one method is shown in figures 6 and 7 where a multi dose package is shown, which comprises a plurality of devices, each according to the invention, each stored, as shown in figure 7, to prevent pressure on the container which would otherwise cause the release of the contents thereof.

Referring now to figure 8, there is shown one way in which the device may be manufactured. Step A shows the heated vacuum forming die adapted to produce a bowl shape of the required volume. In step B, a clear sheet of plastics material such as PET or polyethylene is laid over the die and vacuum formed into it, to form the bowl while in step C, a metered dosage of medicament is fed to the bowl, which forms in fact the second member of the device. At step D, a top sheet of plastics or of a foil and plastics laminate is laid over the bowl and sealed thereto around the edges of the bowl. Preferably, one area of the join is weaker than the remainder. In a further step, not shown, the conjoined first and second members can be

cut with a roller or linear cutting dye to any desired shape, preferably one including a handle portion.

CLAIMS

1. A medicament dosing device comprising a first member having a handle portion and a container portion, a second member joined to said container portion of said first member along a peripheral region thereof to define between the members a container for medicament, at least one of said members or the joint between them being provided with a zone of weakness adapted to be easily rupturable.

2. A device as claimed in Claim 1, wherein the handle portion includes an aperture dimensioned and configured for digital engagement.

3. A device as claimed in either of Claims 1 or 2, wherein the second member comprises a handle portion conjoined to the handle portion of the first member.

4. A device as claimed in any one of the preceding claims, wherein the zone of weakness is located at a location most remote from the handle portion.

5. A device as claimed in any one of the preceding claims, wherein the zone of weakness is such as to be ruptured by oral or dental pressure applied to the contents of the container portion at any location thereon.

6. A device as claimed in any one of the preceding claims, wherein the first member comprises a substantially rigid unit comprising a metal foil sheet.

7. A device as claimed in Claim 6, wherein the metal foil is laminated to a substrate of plastics material, such as polycarbonate.

8. A device as claimed in Claim 6, wherein the metal foil is laminated to a substrate of fibrous material, such as paper or board.

9. A device as claimed in any one of Claims 1 to 5, wherein the first member comprises a substantially rigid unit comprising a plastics material, such as polycarbonate.

10. A device as claimed in any one of the preceding claims, wherein the second member is so resiliently deformable as to enable rupturing pressure to be applied orally to the container.

11. A device as claimed in any one of the preceding claims, wherein the second member is of a plastics material, such as polyethyleneterephthalate (PET), polypropylene, polystyrene or polyethylene.

12. A device as claimed in any one of the preceding claims, wherein the second member is so configured as to accept a predetermined dose of medicament when conjoined peripherally with the first member.

13. A device as claimed in any one of the preceding claims, wherein the first member is provided with insignia, optionally representative of the dosage or the medicament, and optionally viewable through the medicament and the second member to be magnified by a convex or planoconvex lens formed by the container of liquid medicament between on member and the other.

14. A device as claimed in any one of the preceding claims, wherein one of the members is planar and the other member is so dimensioned that, when the two members are conjoined, the container so formed has a predetermined volume.

15. A device as claimed in Claim 14, wherein the first member is planar.

16. A medicament dosing device substantially as described herein with reference to the accompanying drawings.

17. A method of producing a device as claimed in any one of the preceding claims, comprising the steps of providing a material to form the second member, forming at least part of said material into a bowl shape; inserting a metered dose of medicament into the bowl shape of said second member; and adhering thereto said first member.

18. A method as claimed in Claim 17, wherein the conjoined first and second members are cut to a desired shape.

19. A method as claimed in Claim 18, wherein the shape includes a handle portion having an aperture dimensioned and configured for digital engagements.

20. A method of producing a medicament dosing device substantially as described herein with reference to the accompanying drawings.

The Patent Office

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Application No: GB 9522061.2 **Examiner:** Dr Carol Davies
Claims searched: 1-20 **Date of search:** 5 February 1997

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): A4A ; A5B (BW, BZ); B8C (CWA1)

Int Cl (Ed.6): A47G 21/04; A61D 7/00; A61J 7/00; G01F 19/00

Other: ONLINE: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 1019552	(ARNOT) see Figures 1 & 2; p.2 lines 36-43 & 103-111	1 at least
X	GB 1012636	(DeBELL) see for example Figure 2; p.3 lines 15-32	1 at least
X,Y	GB 0924178	(WALLACE) see Figures; p.1 lines 11-16 & 76-90	1 at least
Y	WO 88/06558 A1	(IVAX) see Figure1; p.11 to 13	1 at least
X	US 4338338	(POPKES) see Figures 1-5	1 at least
X,Y	US 3911578.	(USHKOW) see Figures 1-4; column 1 lines 13-15; column 2 lines 4-13	1 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.